



# **PUBLIC HEALTH BULLETIN**

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<b>In this issue: Rabies surveillance in South Dakota 2002</b>	<b>page 3</b>
<b>West Nile Virus surveillance in South Dakota 2002</b>	<b>page 9</b>
<b>South Dakota antimicrobial resistance surveillance</b>	<b>page 14</b>
<b>South Dakota health care workforce survey</b>	<b>page 16</b>
<b>Selected morbidity report, January - April 2003</b>	<b>page 18</b>

## **South Dakota School Height and Weight Data, 2000-2002**

*by Kristin Biskeborn, MPH, RD, LN, Office of Family Health, Department of Health*

The South Dakota School Height and Weight data shows a third of South Dakota students are at risk of overweight or already overweight. The South Dakota Department of Health in cooperation with the Department of Education and Cultural Affairs and school districts across the state has continued to collect height and weight data to monitor the increasing problem with overweight among children and adolescents. This year the Department will be releasing reports for the 2000-2001 and 2001-2002 school years.

The data that schools have voluntarily submitted for South Dakota students have consistently been above the current national levels in overweight and at risk of overweight. And all age groups are moving the wrong direction from the Healthy People 2010 goal of reducing child and adolescent overweight to 5%.

Tables 1 and 2 provide the body mass index (BMI) for age statistics for South Dakota students for the two most recent school years.

<b>Table 1 2000-2001 School Year At Risk for Overweight and Overweight Body Mass Index for Age</b>				
<b>Age</b>	<b>Number of Students</b>	<b>At Risk for Overweight</b>	<b>Overweight</b>	<b>At Risk For Overweight And Overweight Combined</b>
5-8 years	4,856	14.8%	15.6%	30.4%
9-11 years	3,545	16.1%	20.2%	36.3%
12-14 years	2,722	17.7%	19.2%	34.9%
15-19 years	885	14.7%	16.8%	31.5%
Total	12,008	15.8%	17.9%	33.7%

<b>Table 2</b> <b>2001-2002 School Year</b> <b>At Risk for Overweight and Overweight Body Mass Index for Age</b>				
Age	Number of Students	At Risk for Overweight	Overweight	At Risk For Overweight And Overweight Combined
5-8 years	5,428	16.0%	16.4%	32.4%
9-11 years	5,893	17.0%	18.3%	35.3%
12-14 years	2,782	16.1%	21.2%	37.3%
15-19 years	914	15.1%	17.2%	32.3%
Total	15,017	16.4%	17.7%	34.1%

Individual school data is provided to the reporting school along with trend data.

Weight issues for children are a multi-faceted problem that should be addressed by promoting healthy eating and increasing physical activity and decreasing inactivity. The reports will again highlight what a variety of steps that everyone — students, parents, teachers, coaches, and others — can take to address this issue.

#### **What Health Professionals Can Do**

- Measure height and weight accurately and use the CDC growth charts to screen children and adolescents. (<http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/index.htm>)
- Provide anticipatory guidance to parents and children regarding healthy eating and physical activity habits including using *Bright Futures in Practice Nutrition* and *Bright Futures in Practice Physical Activity*. (<http://www.brightfutures.org>)
- Evaluate children and adolescents with positive screens.
- Counsel and refer as appropriate for intervention.

#### **What Communities Can Do**

- Provide a mix of competitive team sports and noncompetitive, lifelong fitness and recreation activities.
- Increase the availability of parks, public swimming pools, hiking and biking trails, and other places for physical activity, including sidewalks.
- Provide choices of healthy foods in vending machines.
- Ensure that physical facilities meet or exceed safety standards.
- Ensure that coaches have appropriate coaching competencies.
- Provide after-school programs for children.
- Work with schools, businesses, and community groups to ensure that low-income young people have transportation and appropriate equipment for physical activity programs.

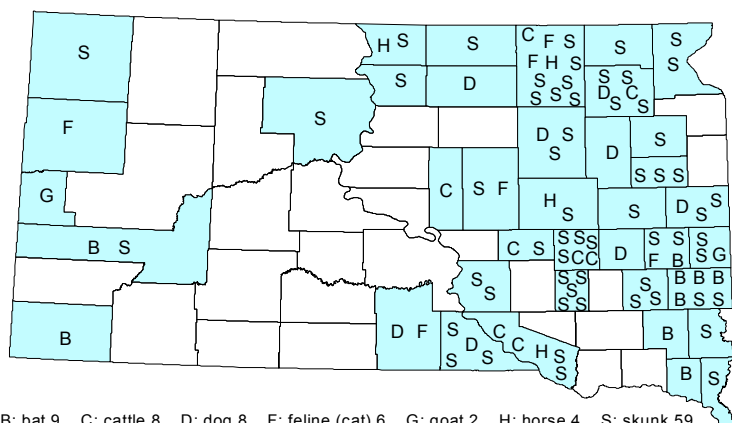
The full reports will be available on the department website. In addition, a variety of consumer and professional resource materials, including those listed above can be accessed through the department's nutrition web pages: <http://www.state.sd.us/doh/Nutrition>.

## Rabies Surveillance, South Dakota, 2002

by Lon Kightlinger, MSPH, PHD, State Epidemiologist

Ninety-six animals tested positive for rabies in South Dakota in 2002. These included 68 wild animals (59 skunks and 9 bats) and 28 domestic animals (8 cattle, 8 dogs, 6 cats, 4 horses, and 2 goats). This is a 66% increase from the previous year when 58 animals tested positive. There were no human rabies cases in South Dakota in 2002. Our last human case was in 1970.

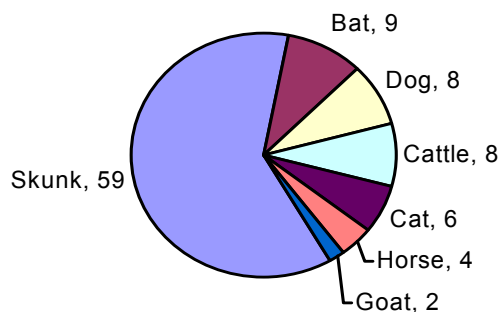
Animal Rabies In South Dakota, 2002



Nationally there were 3 cases of human rabies in 2002, all deaths, one each in Iowa, Tennessee and California. All 3 cases were caused by bat rabies virus.

In 2002, 1260 animals were submitted for rabies testing in South Dakota. Submissions were from all counties, except Buffalo, Corson, Jones, Stanley, Sully, and Ziebach. Rabid animals were detected in 39 counties.

From 1990 through 2002, there were 10,330 animals tested for rabies in South Dakota, 1020 of which tested positive (10%). During these years animals were submitted for testing



from all counties, and rabid animals were detected in all counties, except Bennett, Shannon, Todd, and Ziebach. Minnehaha County submitted the most animals for testing and Ziebach County submitted the fewest.

Cases of animal rabies, by County, South Dakota, 1990 – 2002.					
County	2002		1990 – 2002		
	Pos	Neg	Pos	Neg	% Pos
Aurora	0	4	13	64	17%
Beadle	2	19	30	163	16%
Bennett	0	2	0	18	0%
Bon Homme	0	9	8	64	11%
Brookings	3	50	35	436	7%
Brown	11	45	44	291	13%
Brule	2	3	9	87	9%
Buffalo	0	0	2	14	13%
Butte	1	22	36	186	16%
Campbell	2	3	13	41	24%
Charles Mix	5	17	16	138	10%
Clark	1	6	16	48	25%
Clay	1	8	2	99	2%
Codington	1	18	33	222	13%
Corson	0	0	6	13	32%
Custer	0	3	4	26	13%
Davison	5	30	23	311	7%
Day	6	8	23	88	21%
Deuel	0	11	19	163	10%
Dewey	1	1	12	46	21%
Douglas	0	2	11	55	17%
Edmunds	1	3	11	66	14%
Fall River	1	18	4	150	3%
Faulk	0	5	14	33	30%
Grant	0	7	20	166	11%
Gregory	4	14	10	78	11%
Haakon	0	1	8	64	11%
Hamlin	3	9	30	105	22%
Hand	2	6	21	70	23%
Hanson	0	2	8	44	15%
Harding	1	1	11	20	35%
Hughes	0	20	16	213	7%
Hutchinson	0	20	28	199	12%
Hyde	1	15	17	79	18%
Jackson	0	6	1	64	2%
Jerauld	2	4	10	43	19%
Jones	0	0	3	19	14%
Kingsbury	1	18	34	180	16%
Lake	4	12	21	165	11%
Lawrence	1	13	20	146	12%
Lincoln	1	19	9	186	5%
Lyman	0	7	1	44	2%
Marshall	1	12	22	101	18%
McCook	3	8	20	141	12%
McPherson	1	4	19	81	19%
Meade	0	22	28	196	13%
Mellette	0	1	1	11	8%
Miner	1	5	13	68	16%
Minnehaha	6	380	66	1830	3%
Moody	3	11	28	124	18%
Pennington	2	127	39	735	5%
Perkins	0	2	5	28	15%
Potter	0	2	6	30	17%
Roberts	2	25	19	172	10%
Sanborn	6	5	12	54	18%
Shannon	0	1	0	32	0%
Spink	3	5	16	104	13%
Stanley	0	0	3	13	19%
Sully	0	0	4	10	29%
Todd	0	13	0	63	0%
Tripp	2	12	11	121	8%
Turner	1	24	17	207	8%
Union	1	9	2	98	2%
Walworth	1	22	32	245	12%
Yankton	0	13	5	135	4%
Ziebach	0	0	0	4	0%
<b>South Dakota</b>	<b>96</b>	<b>1164</b>	<b>1020</b>	<b>9310</b>	<b>10%</b>

### Animals tested and confirmed rabies cases, South Dakota, 1990 – 2002

Animal	2002			1990 - 2002		
	Pos	Neg	%	Pos	Neg	%
Skunk	59	33	64%	1056	512	67%
Cattle	8	91	8%	189	1633	10%
Dog	8	201	4%	87	2380	4%
Cat	6	269	2%	76	3520	2%
Bat	9	369	2%	59	1597	4%
Horse	4	83	5%	42	240	15%
Fox	0	8	0%	7	72	9%
Sheep	0	5	0%	6	142	4%
Pig	0	0	-	3	23	12%
Badger	0	0	-	3	17	15%
Raccoon	0	55	0%	2	744	<1%
Goat	0	2	0%	2	29	6%
Bison	0	1	0%	2	7	22%
Opossum	0	2	0%	1	57	2%
Shrew or mole	0	7	0%	1	6	14
Rodents, other*	0	7	0%	0	424	0%
Weasel/ferret/mink	0	4	0%	0	67	0%
Deer, elk, donkey, llama	0	10	0%	0	66	0%
Coyote or wolf	0	4	0%	0	48	0%
Muskrat	0	8	0%	0	36	0%
Squirrel/chipmunk	0	8	0%	0	25	0%
Woodchuck	0	2	0%	0	11	0%
Rabbits and hares	0	1	-	0	8	0%
Bobcat or bear	0	1	0%	0	5	0%
Other animals	0	-	-	0	14	0%
<b>TOTAL</b>	<b>96</b>	<b>1164</b>	<b>8%</b>	<b>1536</b>	<b>11683</b>	<b>12%</b>

\*rodents (rat mouse prairie dog gopher beaver porcupine)

Since 1990, 26% of the rabid animal reports in South Dakota have been from domestic animals. Rabid livestock reports included 189 cattle, 42 horses, 6 sheep, 3 pigs, and 2 goats. There were also 87 rabid dogs and 76 rabid cats, many of which were strays. Of the 58 rabid dogs investigated between 1993 and 2002, none were fully immunized, 83% had never been immunized, 7% were inadequately immunized, and 10% were of unknown vaccination status.

The common skunk (*Mephitis mephitis*) is the enzootic rabies reservoir in South Dakota. Since 1990, 67% of the skunks tested have been rabid. We also have enzootic bat rabies in South Dakota with 59 positive testing bats since 1990. The rabid bats identified in South Dakota since 2000 have included big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), northern myotis (*Myotis septentrionalis*), and long-legged myotis bat (*Myotis volans*).

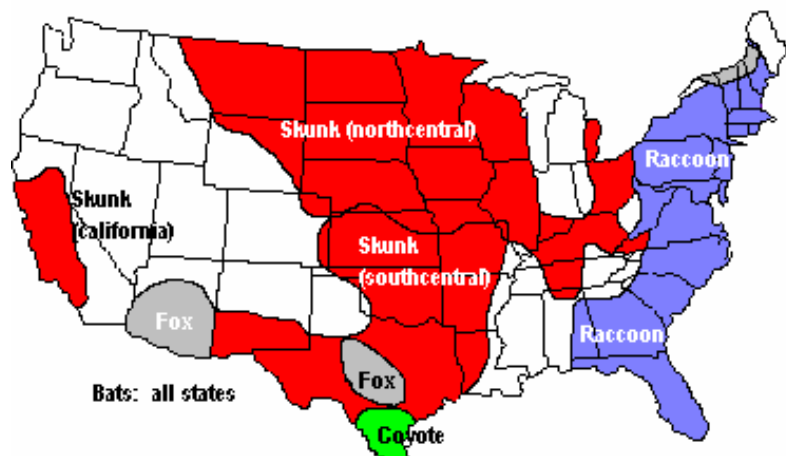
Rabies is not considered enzootic in other free-living animals in South Dakota. Since 1990, however, rabies has been

detected in 7 fox, 3 badgers, 2 raccoons, 2 bison, 1 shrew, and 1 opossum. These other wild animals are thought to have been spillover rabies following exposure to rabid skunks. The latest national rabies surveillance information is reported on 2001 data (Krebs, et. al., 2002).

Nationally in 2001, there were 7436 cases of animal rabies reported.

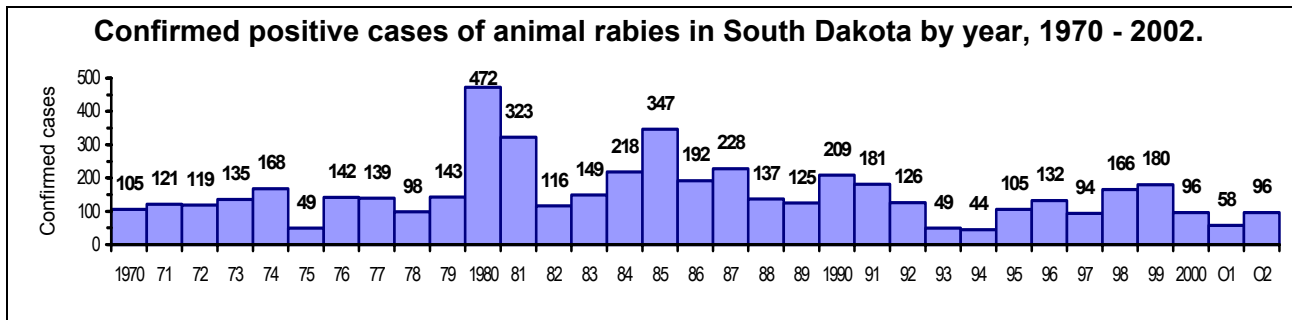
According to Krebs et al., 93% of the rabies cases were among wild animals and 7% were among domestic animals. Nationally domestic animals included 270 cats, 89 dogs, 82 cattle, 51 horses/mules, 3 goats/sheep and 2 swine. Wild animals testing positive for rabies included 2767 raccoons, 2282 skunks, 1281 bats, 437 fox, 70 mongooses, 49 groundhogs, 28 bobcats, 7 coyotes, 5 otters, 5 rabbits, 3 beavers, 2 badgers, 2

### Wild animal reservoirs of rabies in the United States.



opossums, 1 chipmunk, and 1 deer.

Animals are tested for rabies in 2 laboratories in South Dakota: Animal Disease Research Diagnostic Laboratory in Brookings and the State Public Health Laboratory in Pierre. Both laboratories use the direct fluorescent antibody (DFA) technique. During 2002 the Brookings laboratory tested 872 animals (74 positive, 8%) and the Pierre laboratory tested 388 animals (22 positive, 6%).



The case definition of a confirmed case of animal rabies is a positive DFA test, performed preferably on central nervous system tissue, or the isolation of rabies virus in cell culture or in a laboratory animal.

Rabies consultations are done by the Office of Disease Prevention, South Dakota Department of Health, 7 days a week (phone 1-800-592-1861). Consultations are based on current Centers for Disease Control and Prevention (CDC) recommendations\*. We strive to recommend appropriate rabies prevention measures and to minimize unnecessary and inappropriate post-exposure prophylactic treatment.

## Rabies resources

### Department of Health, Office of Disease Prevention (rabies consultations)

615 East Fourth Street  
Pierre, SD 57501-1700  
Phone: 605-773-3737; 1-800-592-1861;  
after hours cell phone 605-280-4810  
[www.state.sd.us/doh/Pubs/rabies.htm](http://www.state.sd.us/doh/Pubs/rabies.htm)

### Department of Health, Public Health Laboratory (rabies testing and submitting specimens)

615 East Fourth Street  
Pierre, SD 57501-1700  
Phone: 1-800-592-1861; 605-773-3368  
[www.state.sd.us/doh/Lab/rabies.htm](http://www.state.sd.us/doh/Lab/rabies.htm)

### CDC Rabies homepage:

[www.cdc.gov/ncidod/dvrd/rabies/default.htm](http://www.cdc.gov/ncidod/dvrd/rabies/default.htm)

### Animal Disease Research and Diagnostic Laboratory (rabies testing)

Department of Veterinary Science  
Box 2175, North Campus Drive  
South Dakota State University  
Brookings, SD 57007-1396  
Phone: 605-688-5171  
[www.vetsci.sdstate.edu](http://www.vetsci.sdstate.edu)

### South Dakota Animal Industry Board

(livestock and other animal veterinary and regulatory issues)  
441 S. Fort Street  
Pierre, SD 57501-4503  
Phone: 605-773-3321  
[www.state.sd.us/aib/](http://www.state.sd.us/aib/)

### South Dakota Bat Working Group

(information on bats in South Dakota)  
South Dakota State University, College of Agriculture and Biological Sciences  
[http://nat\\_hist.sdstate.edu/SDBWG/SDBWG.html](http://nat_hist.sdstate.edu/SDBWG/SDBWG.html)

## References.


\*Centers for Disease Control and Prevention. Human rabies prevention – United States, 1999: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1999; 48 (No. RR-1).

[www.cdc.gov/mmwr/preview/mmwrhtml/00056176.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/00056176.htm)

Centers for Disease Control and Prevention. Compendium of animal rabies prevention and control, 2003: National Association of State Public Health Veterinarians, Inc. MMWR 2003; 52 (No. RR-5).

[www.cdc.gov/mmwr/preview/mmwrhtml/rr5205a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5205a1.htm)

Krebs, JW, HR Noll, CE Rupprecht, and JE Childs. 2002. Rabies surveillance in the United States during 2001. Journal of the American Veterinary Medical Association 221: 1690-1701.

**Rabies is a viral infection that affects the nervous system of mammals. It is usually transmitted by an infected animal bite, scratch or exposure to saliva.** After being bitten or scratched, symptoms usually start 3 - 8 weeks later. Symptoms may include behavior changes, headache, fever, malaise, sensory changes, and paralysis. Rabies is almost always fatal. Prompt vaccination following a bite prevents rabies in humans. Up-to-date vaccinations of dogs, cats, ferrets and livestock, prior to exposure, protects against the disease. 

**If a human is exposed to rabies they must have anti-rabies shots.**

## **ANTI-RABIES SHOTS** (Post-Exposure Prophylaxis)

**See your health care provider**

- Clean wound with soap, water and a virucidal agent such as povidone-iodine solution.
- Immunize for tetanus, if needed.
- Control the bacterial infection.
- Administer 1 dose of rabies immune globulin (RIG) 20 IU/kg body weight, infiltrated around wound site.
- Administer 5 doses of rabies vaccine, 1.0 mL each (IM deltoid) over 28-days (days 0, 3, 7, 14, 28).

- If the person was previously vaccinated for rabies, the RIG should not be administered and only 2 doses of vaccine are recommended (days 0 and 3).

- Anti-rabies post-exposure prophylaxis costs around \$2000, depending on weight of the patient.

**Rabies shots are given in the arm, like the flu shot.**



## **South Dakota Administrative Rule Regarding Rabies Control.**

### **RABIES CONTROL: CHAPTER 12 (Section 12-1, 2, 3, 4, 5, 6)**

40-12-1. Confinement of animals required in localities where rabies exists -- Neglect as misdemeanor. In localities where rabies exists, the animal industry board may require that any animal deemed likely to spread such disease shall be muzzled, caged, tied or confined in any manner that may be deemed necessary. It is a Class 1 misdemeanor for any owner or person in charge of any animal so ordered to be muzzled, caged, tied or confined, to refuse or neglect to carry out such order.

40-12-2. Destruction of rabid animal required. If the animal industry board determines that rabies exists in any animal, the board may kill such animal and any animal there is reason to believe has been bitten by any animal affected with rabies.

40-12-3. Violation of chapter as misdemeanor. Repealed by SL 1977, ch 190, § 482.

40-12-4. Definition of terms. Terms used in this chapter mean:

- (1) "Department," the department of health;
- (2) "Owner," any person who has a right of property in a pet, keeps or harbors a pet or who has it in his care or acts as its custodian, or permits a pet to remain on or about any premises occupied by him;
- (3) "Pet," any dog, cat or other species of carnivore kept for domestication or display.

40-12-5. Confinement of pet after attack upon person -- Violation as misdemeanor. The department may serve written notice upon the owner of any dog or cat which has attacked or bitten a person to confine the animal at the owner's expense upon his premises or at a city pound or other place designated in the notice for a period of at least ten days after the animal has attacked or bitten any person. The department may examine the animal at any time within the ten-day period of confinement to determine whether such animal shows symptoms of rabies. In the case of any pet other than a dog or cat, which has attacked or bitten a person, the department may serve written notice upon the owner of such animal that the owner shall have the animal euthanized immediately and submit the brain to an approved laboratory for rabies examination. Any owner who fails to comply with a written notice served pursuant to this section is guilty of a Class 1 misdemeanor.

40-12-6. Confinement of pet bitten by animal suspected of having rabies -- Violation as misdemeanor. The department may serve written notice upon the owner of a dog or cat known to have been bitten by an animal known or suspected of being affected by rabies, requiring the owner to confine such dog or cat for a period of not less than six months. However, if such dog or cat had been properly treated with an antirabic vaccine, confinement shall be for a period of not less than three months. In the case of any pet other than a dog or cat, the department may serve written notice upon the owner of such animal that the owner shall have the animal euthanized immediately. Any owner who fails to comply with a written notice served pursuant to this section is guilty of a Class 1 misdemeanor.

### **CONTROL MEASURES: CHAPTER 44:20:03:10**

44:20:03:10. Application of public health measures to animals. The department may instruct a person who owns or is in possession of an animal known or suspected to be a carrier of an infectious agent in public health measures for preventing infection and spread of disease. If the department knows or has reason to believe, because of testing or epidemiological information, that an animal is infected with an infectious agent and is a threat to the public health, it may issue a public health notice directing the person who owns or is in possession of the animal to take one or more of the following actions:

- (1) To examine or test the animal to determine whether it is infected with an infectious agent capable of causing human disease
- (2) To report to an authorized department representative for counseling on methods for preventing transmission of the infectious agent;
- (3) To confine or quarantine the animal for the duration of the incubation period or contagious period;
- (4) To destroy the animal or provide treatment until it is cured or free from the infection and to follow measures for preventing reinfection;
- (5) To cease from specific activities involving the infected animal that endanger the health of others;
- (6) To cooperate with the department in implementation of reasonable public health measures.

### **SHERIFF: CHAPTER 12 (Section 7-12-29)**

7-12-29. Taking and holding animal suspected of being dangerous -- Formal determination -- Disposal of dangerous animal. The sheriff may take possession of any animal suspected of being dangerous. The sheriff may hold such animal until a formal determination can be made of the extent of the danger such animal poses. If the animal has attacked or bitten a human or an animal pet, the formal determination shall include consultation with the Department of Health for the purposes of rabies control. The sheriff may dispose of any animal so determined to be dangerous.

**Animal rabies cases, by state and category, 2001. (Krebs et al, JAVMA 221, 15 Dec 2002)**

State	Domestic Animals							Wild Animals					
	All	Dog	Cat	Cattle	Horse	Sheep	Pig	Skunk	Fox	Bat	Raccoon	Rabbit - Rodent	Other wild
Alabama	66	3	3					1	6	31	22		
Alaska	48	3							45				
Arizona	129							59	6	55			9
Arkansas	32		1					28		3			
California	321		1		1			151	2	166			
Colorado	32									32			
Connecticut	242		6	2				77	5	14	134	3	1
Delaware	9									1	8		
D.C.	39		2					3	6	2	26		
Florida	209	1	16		1				35	21	130	1	4
Georgia	402	6	26	1	1	1		41	55	37	228		6
Hawaii	0												
Idaho	29									28			1
Illinois	24									24			
Indiana	15									15			
Iowa	85	2	10	10	3			28	1	31			
Kansas	100	2	11	7	4			69	2	5			
Kentucky	30	3	1		1			15	2	8			
Louisiana	10				1			5		4			
Maine	85		3	1	1			32	5	8	34		1
Maryland	505	1	23	1	1			42	38	27	366	6	
Massachusetts	279	1	8	1			1	132	10	32	82	9	3
Michigan	47		1	1	2				2	41			
Minnesota	47	4	1	2	3			24		13			
Mississippi	4									4			
Missouri	40	1	1		1			5	1	31			
Montana	36	1		3	1			17		14			
Nebraska	12	2	1		1			2		6			
Nevada	5									5			
New Hampshire	25		1	1				5		8	8	2	
New Jersey	200		17		2			16	5	37	119	4	
New Mexico	15	1						2		12			
New York	821	2	32	6	3	1		168	36	113	444	16	
North Carolina	571	6	13		1			73	56	31	386	1	4
North Dakota	42	2	3	6	3			27					1
Ohio	52			1						50	1		
Oklahoma	60	2	1	6	1	1		45		3			1
Oregon	4									4			
Pennsylvania	441	4	33	7	2			68	34	43	244	6	
Puerto Rico	98	13	6	2	6		1						70
Rhode Island	72		1					39	3	6	22	1	
South Carolina	143	4	4		1			25	25	4	80		
<b>South Dakota</b>	<b>58</b>	<b>1</b>	<b>4</b>	<b>7</b>	<b>1</b>			<b>34</b>		<b>11</b>			
Tennessee	106	2						93		11			
Texas	1043	16	13	7	5			778	15	194	9		6
Utah	15									15			
Vermont	62							11	4	3	40	4	
Virginia	502	4	20	5	2			116	34	23	288	3	7
Washington	22									22			
West Virginia	142	1	6					23	3	11	96		2
Wisconsin	20			5	2			1		12			
Wyoming	40	1	1					27	1	10			
<b>TOTAL</b>	<b>7,436</b>	<b>89</b>	<b>270</b>	<b>82</b>	<b>51</b>	<b>3</b>	<b>2</b>	<b>2282</b>	<b>437</b>	<b>1281</b>	<b>2767</b>	<b>56</b>	<b>116</b>



## West Nile Virus first transmission season in South Dakota, 2002

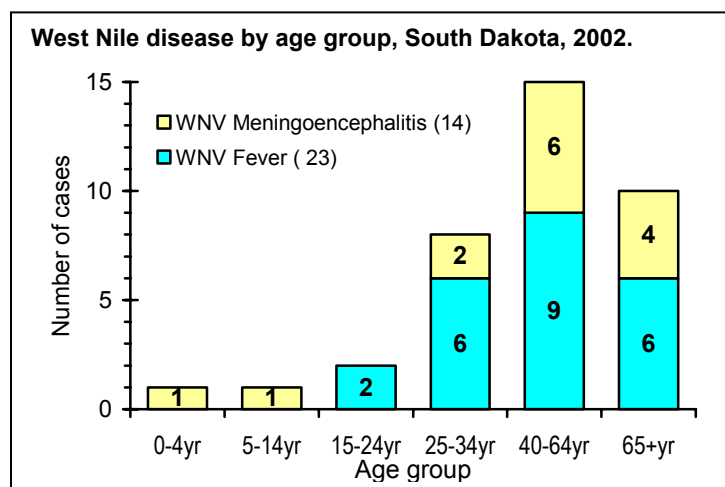
by Lon Kightlinger, MSPH, PhD, State Epidemiologist, Department of Health

West Nile virus (WNV) was first detected in the Western Hemisphere in 1999, in New York. WNV has since spread west across the continent, reaching South Dakota in the summer of 2002. WNV is now considered an endemic disease in North America, including South Dakota, and continues to threaten our birds, our horses and most importantly, our people.

During the summer of 2002 North America experienced the largest epidemic of arboviral encephalitis ever. Great Plains and Midwestern states were at the center of the epidemic. Nebraska had the highest incidence of human West Nile disease, while South Dakota had the sixth highest state rate.

Nationally in 2002, there were 4156 human cases of WNV disease, with 284 deaths. The WNV cases included 2946 meningoencephalitis cases, 1162 with WNV fever, and 48 unknown status. The national median age was 55 years (range newborn to 99 years).

In South Dakota there were 37 human cases of WNV disease in 2002. Of these, 14 were diagnosed with meningoencephalitis and 23 were cases of West Nile fever, a milder form of the disease. There were no West Nile deaths in South Dakota. Of the 37 SD cases, 25 were male (68%) and 12 were female (32%). The median age was 50 years (range 2 – 91 years), with most of the cases in the 40 – 64 year age group.



There were 662 South Dakotans tested for West Nile illness in 2002. Along with the WNV tests, parallel tests for St Louis encephalitis (SLE) virus were run. All SLE

State	WNV cases	Incidence*
Nebraska	152	8.9
Louisiana	329	7.4
Illinois	884	7.1
Mississippi	192	6.7
Michigan	614	6.2
Washington DC	34	5.9
<b>South Dakota</b>	<b>37</b>	<b>4.9</b>
Indiana	293	4.8
Ohio	441	3.9
Missouri	168	3.0
North Dakota	17	2.6
Kentucky	75	1.9
Iowa	54	1.8
Arkansas	43	1.6
Alabama	49	1.1
Tennessee	56	1.0
Minnesota	48	1.0
Wisconsin	52	1.0
Texas	202	1.0
Kansas	22	0.8
Maryland	36	0.7
Oklahoma	21	0.6
Georgia	44	0.5
Pennsylvania	62	0.5
Connecticut	17	0.5
New York	82	0.4
Virginia	29	0.4
Wyoming	2	0.4
Massachusetts	23	0.4
Colorado	14	0.3
New Jersey	24	0.3
Montana	2	0.2
Florida	28	0.2
West Virginia	3	0.2
Vermont	1	0.2
Delaware	1	0.1
Rhode Island	1	0.1
South Carolina	1	<0.1
North Carolina	2	<0.1
California	1	<0.1
Alaska	0	0.0
Arizona	0	0.0
Hawaii	0	0.0
Idaho	0	0.0
Maine	0	0.0
Nevada	0	0.0
New Hampshire	0	0.0
New Mexico	0	0.0
Oregon	0	0.0
Utah	0	0.0
Washington	0	0.0
<b>United States</b>	<b>4156</b>	<b>1.5</b>

\*Incidence: cases per 100,000 population

Birds were collected and tested as leading surveillance indicators of WNV activity. Of the 321 birds submitted, 94 tested WNV positive using PCR, 142 tested negative, and 85 were not tested due to decomposition or wrong species submission. The 94 birds testing positive included 41 blue jays, 22 crows, 7 owls,

West Nile virus detections, South Dakota by County, 2002								
	HUMANS		ANIMALS		BIRDS		MOSQUITOES	
County	Tested	WNV+	Tested	WNV+	Tested	WNV+	Tested	WNV+
Aurora	3	0	3	3	6	0	0	0
Beadle	16	0	16	14	5	1	446	17
Bennett	0	0	4	3	2	2	0	0
Bon Homme	4	0	4	4	2	0	0	0
Brookings	23	0	89	51	8	3	10681	18
Brown	44	4	46	38	11	2	0	0
Brule	5	1	1	1	9	3	0	0
Buffalo	1	0	2	1	0	0	0	0
Butte	5	0	71	56	1	0	0	0
Campbell	1	0	8	7	0	0	0	0
Charles Mix	9	2	21	10	4	2	0	0
Clark	1	0	6	6	1	0	0	0
Clay	7	0	9	7	4	4	0	0
Codington	32	1	25	20	16	8	751	0
Corson	1	0	8	8	0	0	0	0
Custer	5	0	4	2	6	1	0	0
Davison	24	1	14	9	5	3	0	0
Day	10	0	16	13	15	7	356	0
Deuel	3	0	18	13	1	0	0	0
Dewey	8	0	21	19	2	1	0	0
Douglas	10	0	1	1	2	1	0	0
Edmunds	7	0	3	2	8	3	0	0
Fall River	2	0	27	16	2	0	0	0
Faulk	5	2	5	5	0	0	0	0
Grant	18	1	10	7	4	2	0	0
Gregory	8	2	12	8	2	0	0	0
Haakon	10	3	7	7	3	0	0	0
Hamlin	5	0	5	4	6	4	0	0
Hand	4	1	8	7	0	0	0	0
Hanson	7	0	3	3	1	1	0	0
Harding	0	0	10	9	1	1	0	0
Hughes	41	7	32	26	9	6	1799	0
Hutchinson	6	2	5	3	4	3	0	0
Hyde	7	1	10	9	1	1	0	0
Jackson	0	0	9	7	0	0	0	0
Jerauld	2	0	6	4	1	0	0	0
Jones	2	0	8	6	2	1	0	0
Kingsbury	28	0	48	12	1	1	0	0
Lake	10	1	16	9	11	4	0	0
Lawrence	3	0	3	2	1	0	0	0
Lincoln	22	0	44	38	1	0	0	0
Lyman	14	3	9	7	0	0	0	0
Marshall	13	0	28	8	1	0	0	0
McCook	6	0	10	8	5	4	0	0
McPherson	1	0	2	2	1	1	0	0
Meade	8	0	15	9	3	0	0	0
Mellette	1	0	6	6	0	0	0	0
Miner	6	2	6	6	5	2	0	0
Minnehaha	76	0	54	39	23	8	1642	0
Moody	6	0	12	5	6	3	0	0
Pennington	38	0	46	29	7	0	0	0
Perkins	2	0	7	6	1	0	0	0
Potter	11	1	6	1	0	0	0	0
Roberts	5	0	11	10	8	2	0	0
Sanborn	5	1	4	4	0	0	0	0
Shannon	6	0	1	1	0	0	0	0
Spink	6	0	15	8	1	1	0	0
Stanley	4	0	14	13	1	1	787	0
Sully	1	0	3	2	2	2	0	0
Todd	8	0	4	4	0	0	0	0
Tripp	17	0	17	12	1	0	0	0
Turner	4	0	16	13	2	1	0	0
Union	4	0	15	13	7	3	314	0
Walworth	12	1	18	11	1	1	0	0
Yankton	8	0	7	5	3	0	0	0
Ziebach	1	0	1	1	0	0	0	0
South Dakota	662	37	985	693	236	94	16776	35
*Animal cases include 690 horses, 2 squirrels, 1 dog								

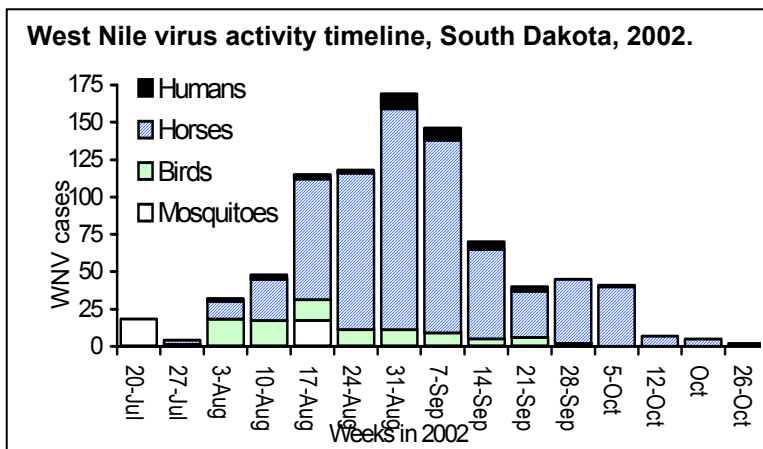
7 pelicans, 5 hawks, 4 golden eagles, 2 cormorants, 2 magpies, 1 duck, 1 Canada goose, 1 emperor goose and 1 Imperyan pheasant.

WNV positive horses were detected in all 66 counties. Horses were tested for anti-WNV IgM at the Animal Disease Research and Diagnostic Laboratory in Brookings, with confirmatory testing at the National Veterinary Science Laboratory.

The principle route of human WNV infection is the bite of an infected mosquito. During the 2002 West Nile epidemic it became apparent that WNV could also be transmitted by blood transfusion, organ transplant, transplacentally, and through human breast milk. Two cases of WNV transmission to laboratory workers were also reported. It is important to note that these other transmission modes represent a very small proportion of cases.

As summer 2003 approaches we must prepare again for WNV transmission in South Dakota. Communities should improve their mosquito control programs, horses should be vaccinated, citizens should submit dead birds for testing, and everyone should use personal protective measures and eliminate places where mosquitoes can grow.

It is recommended that during the WNV season individuals with severe or unusual headaches seek medical care as soon as possible. We encourage physicians to have a high index of suspicion for WNV disease. Free WNV testing is available at the South Dakota Public Health Laboratory. We do not encourage testing mildly ill patients or individuals who wish to know if they have an antibody titer. Suspect clinical serum or CSF should be submitted to the Public Health Laboratory. If you have any questions call the laboratory at **1-800-592-1861**.



**Guidelines for submitting human samples for WNV and other arbovirus testing to the South Dakota Public Health Laboratory (test code WNV):**

**SERUM:** Acute serum collected 8-10 days after onset of symptoms. Acute serum collected too early after onset may produce false negative results.

Convalescent serum should be collected 2-3 weeks after the acute specimen.

Send 2-3 ml of serum on cool packs.

Serum separated from red blood cells preferred.

Use standard blood collection tubes without anticoagulant.

**CEREBROSPINAL FLUID:** Send 2-3 ml of CSF on cool packs. Do not freeze.

Also send serum sample collected at appropriate time.

**BREASTMILK:** Send 2-3 ml in a sterile container on cool packs.

**South Dakota Public Health Laboratory, 614 East 4<sup>th</sup> Street, Pierre SD 57501**

# West Nile Virus (WNV) Infection

## *Information for Clinicians*

Centers for Disease Control and Prevention and South Dakota Department of Health

### **WNV Clinical Features**

**Mild WNV Infection** Most WNV infections are mild and often clinically unapparent

- Approximately 20% of those infected develop a mild illness (West Nile fever).
- The incubation period is thought to range from 3 to 14 days.
- Symptoms generally last 3 to 6 days.

Reports from earlier outbreaks describe the mild form of WNV infection as a febrile illness of sudden onset often accompanied by

- |            |            |                   |
|------------|------------|-------------------|
| ○ malaise  | ○ vomiting | ○ myalgia         |
| ○ anorexia | ○ eye pain | ○ rash            |
| ○ nausea   | ○ headache | ○ lymphadenopathy |

The full clinical spectrum of West Nile fever has not been determined in the United States.

**Severe WNV Infection** Approximately 1 in 150 infections results in severe neurological disease.

- The most significant risk factor for developing severe neurological disease is advanced age.
- Encephalitis is more commonly reported than meningitis.

Symptoms occurring among patients hospitalized with severe disease include

- |   |                             |
|---|-----------------------------|
| • fever   | • gastrointestinal symptoms |
| • weakness  | • change in mental status   |
| • A minority of patients with severe disease developed a maculopapular or morbilliform rash involving the neck, trunk, arms, or legs. |                             |
| • Several patients experienced severe muscle weakness and flaccid paralysis.  |                             |
| • Neurological presentations included:  |                             |
| ○ Ataxia and extrapyramidal signs   | ○ optic neuritis            |
| ○ cranial nerve abnormalities   | ○ polyradiculitis           |
| ○ myelitis  | ○ seizures                  |

Although not observed in recent outbreaks, myocarditis, pancreatitis, and fulminant hepatitis have been described.

### **Clinical Suspicion**

Diagnosis of WNV infection is based on a high index of clinical suspicion and obtaining specific laboratory tests.

- WNV, or other arboviral diseases such as St. Louis encephalitis, should be strongly considered in adults  $\geq 50$  years who develop unexplained encephalitis or meningitis in summer or early fall.
- The local presence of WNV activity in birds and horses, or other human cases, should further raise suspicion.

Note: Severe neurological disease due to WNV infection has occurred in patients of all ages. Year-round transmission is possible in sub-tropical areas. Therefore, WNV should be considered in all persons with unexplained encephalitis and meningitis.

## **Diagnosis and Reporting**

**Diagnostic Testing** WNV testing for patients with West Nile disease symptoms can be obtained through the South Dakota Public Health Laboratory in Pierre (1-800-592-1861). Human testing is *FREE* at the Public Health Laboratory. The cost is supported by the CDC's Epidemiology-Laboratory Capacity Grant.

- The most efficient diagnostic method is detection of IgM antibody to WNV in serum or cerebral spinal fluid (CSF) collected within 8 days of illness onset using the IgM antibody capture enzyme-linked immunosorbent assay (MAC-ELISA).
- Since IgM antibody does not cross the blood-brain barrier, IgM antibody in CSF strongly suggests central nervous system infection.
- Patients who have been recently vaccinated against or recently infected with related flaviviruses (e.g., yellow fever, Japanese encephalitis, dengue) may have positive WNV MAC-ELISA results.

## **Reporting Suspected WNV Infection**

The timely identification of persons with acute WNV or other arboviral infection may have significant public health implications and will likely augment the public health response to reduce the risk of additional human infections

- WNV encephalitis is on the list of designated nationally notifiable arboviral encephalitides and is a legally reportable disease in South Dakota (ARSD 44:20).  
To report call **1-800-592-1861**.
- WNV fever also provides useful surveillance information and may also be reported.

## **Laboratory Findings**

Among patients in recent outbreaks:

- Total leukocyte counts in peripheral blood were mostly normal or elevated, with lymphocytopenia and anemia also occurring.
- Hyponatremia was sometimes present, particularly among patients with encephalitis.
- Examination of the cerebrospinal fluid (CSF) showed pleocytosis, usually with a predominance of lymphocytes.
- Protein was universally elevated.
- Glucose was normal.
- Computed tomographic scans of the brain mostly did not show evidence of acute disease, but in about one-third of patients, magnetic resonance imaging showed enhancement of the leptomeninges, the periventricular areas, or both.

**Treatment** Treatment is supportive, often involving hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections for patients with severe disease. Ribavirin in high doses and interferon alpha-2b were found to have some activity against WNV in vitro, but no controlled studies have been completed on the use of these or other medications, including steroids, antiseizure drugs, or osmotic agents, in the management of WNV encephalitis.

For additional clinical information, please refer to Petersen LR and Marfin AA, "West Nile Virus: A Primer for the Clinician" *Annals of Internal Medicine* (August 6) 2002: 137:173-9.

For case definitions, see "Epidemic/Epizootic West Nile Virus in the United States: Revised Guidelines for Surveillance, Prevention, and Control, 2001," at [www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm](http://www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm)

## South Dakota Antimicrobial Resistance Surveillance

by Josh Clayton, Disease Intervention Specialist, Department of Health

**Introduction:** The number of infections caused by antimicrobial resistant bacteria are complicating patient care and threatening the public's health. Reports of vancomycin-resistant *Staphylococcus aureus* in other countries and now in the United States have caught the attention of the medical community. The surveillance of antimicrobial resistance in South Dakota has produced this first statewide look at bacterial sensitivity patterns.

**Method:** Fifty-seven CLIA certified laboratories in South Dakota were surveyed to determine their bacterial culture and sensitivity methods. They were requested to voluntarily send individual or aggregate bacterial sensitivity data for the time period July 1, 2001 through June 30, 2002. Of the 57 laboratories surveyed 34 (60%) met the required specifications and were able to comply with the request. Laboratories were excluded if they did not perform their own sensitivities, or if they performed sensitivities on only gram negative bacilli. Letters were sent out to these labs asking for sensitivity data on the following organisms:

1. *Staphylococcus aureus*
2. *Campylobacter spp.*
3. *Salmonella spp.*
4. *Shigella spp.*
5. *Neisseria gonorrhoeae*
6. invasive *Neisseria meningitidis*
7. invasive Group A Strep (*Streptococcus pyogenes*)
8. invasive Group B Strep (*Streptococcus agalactiae*)
9. invasive *Streptococcus pneumoniae*
10. *Mycobacterium tuberculosis*

The letter included a reportable disease list for South Dakota and, as an example, the 2001 Minnesota antibiogram.

Facilities were contacted again 2-4 weeks after sending the letter to determine if they had received the letter, asked if there were any questions about the letter's content, and encouraged to participate. All data received were reviewed prior to entry into an Epi Info 2000 database. Variables included: organism, antibiotic susceptibility status, specimen collect date, collection site, patient gender, and date of birth. The data were then analyzed for percent susceptible for each organism by antibiotic. These susceptibilities were then transferred into the antibiogram table.

**Results and Discussion:** The antibiogram has listed only seven of the ten requested organisms. This is because no laboratory routinely performs sensitivities on *Neisseria gonorrhoeae*, *Neisseria meningitidis*, or *Campylobacter spp.*

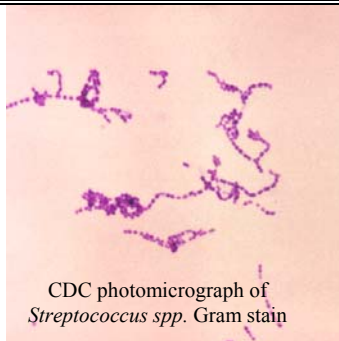
The greatest problem with this project was the time period of the isolate requesting. Some participating facilities could not conform their data to the time period requested (July 1, 2001 through June 30, 2002). A few facilities sent data for a calendar year January 1, 2001 through December 31, 2001. This data was entered into the antibiogram. For future note, a calendar year is an easier time period for the facilities to conform. The next antibiogram will have a time period of January 1, 2002 through December 31, 2002.

### Bibliography

1. Manual of Clinical Microbiology, 7th Edition.
2. Sanford's Guide to Antimicrobial Therapy, 1999 Edition.
3. Minnesota Department of Health Antimicrobial Susceptibilities of Selected Pathogens, 2001.
4. *Staphylococcus aureus* Resistant to Vancomycin. MMWR, July 5, 2002.
5. Public Health Bulletin. SD Department of Health, vol. 14 no. 1, January 2002.
6. John Hopkins Antibiotic Guide [www.hopkins-abxguide.org](http://www.hopkins-abxguide.org)



## South Dakota Antibigram (July 1, 2001 to June 30, 2002)

								
CDC photomicrograph of <i>Streptococcus</i> spp. Gram stain	Salmonella spp.	Shigella spp.	Group A Streptococcus	Group B Streptococcus	Streptococcus pneumoniae	Staphylococcus aureus	Mycobacterium tuberculosis	
Antibiotic	% susceptible	(n)	number of isolates					
Ampicillin	83%	(48)	25% (338)	100% (43)	98% (62)			
Cefotaxime						82% (315)		
Ceftriaxone	93%	(30)	100% (247)			92% (210)		
Oxacillin							63% (4827)	
Penicillin				100% (37)	94% (118)	68% (554)	8% (4360)	
Ciprofloxacin	100%	(47)	100% (299)				76% (4790)	
Levofloxacin				100% (26)	96% (111)	99% (320)		
Ofloxacin						97% (35)		
Chloramphenicol			97% (58)			92% (135)	92% (741)	
Clindamycin				100% (45)	86% (113)	88% (371)	78% (4881)	
Erythromycin				77% (13)	83% (98)	60% (320)	59% (4934)	
Gentamicin							97% (3706)	
Nitrofurantoin*							99% (1779)	
Rifampin							97% (2497)	
Tetracycline	71%	(21)	94% (114)			77% (153)	94% (3502)	
Trimethoprim/ Sulfamethoxazole	92%	(49)	82% (338)			67% (229)	98% (4404)	
Vancomycin				100% (21)	100% (78)	100% (463)	100% (4878)	
Isoniazid								94% (17)
Streptomycin								100% (17)
Ethambutol								100% (17)
Rifampin								100% (17)
Kanamycin								100% (17)
Pyrazinamide								94% (17)

### Comments

Salmonella spp. Antimicrobial treatment for enteric salmonellosis generally is not recommended.

Escherichia coli O157:H7. Antimicrobial treatment for E. coli O157:H7 infection is not recommended.

Mycobacterium tuberculosis. No cases of multi-drug resistant MTB were reported.

\*Urine Isolates Only.



## South Dakota Health Care Professional Workforce Survey

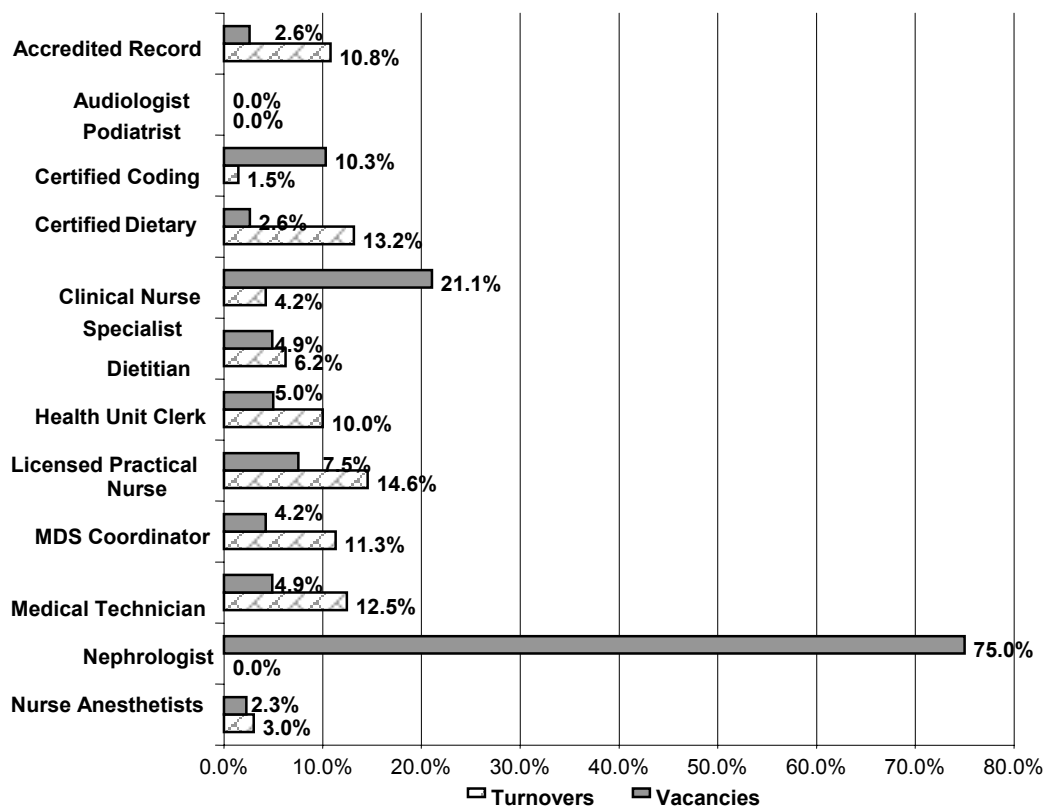
The Department of Health conducts an annual survey of the status of the health care professional workforce within South Dakota to provide accurate and up to date information about health care professional workforce vacancies and turnover in the state.

All facilities that are licensed, registered, or certified by the department are surveyed using a survey developed by the department, in consultation with the Colleagues in Caring Program. The survey requests concise data on the current workforce and some detailed information for those occupations that currently have job openings.

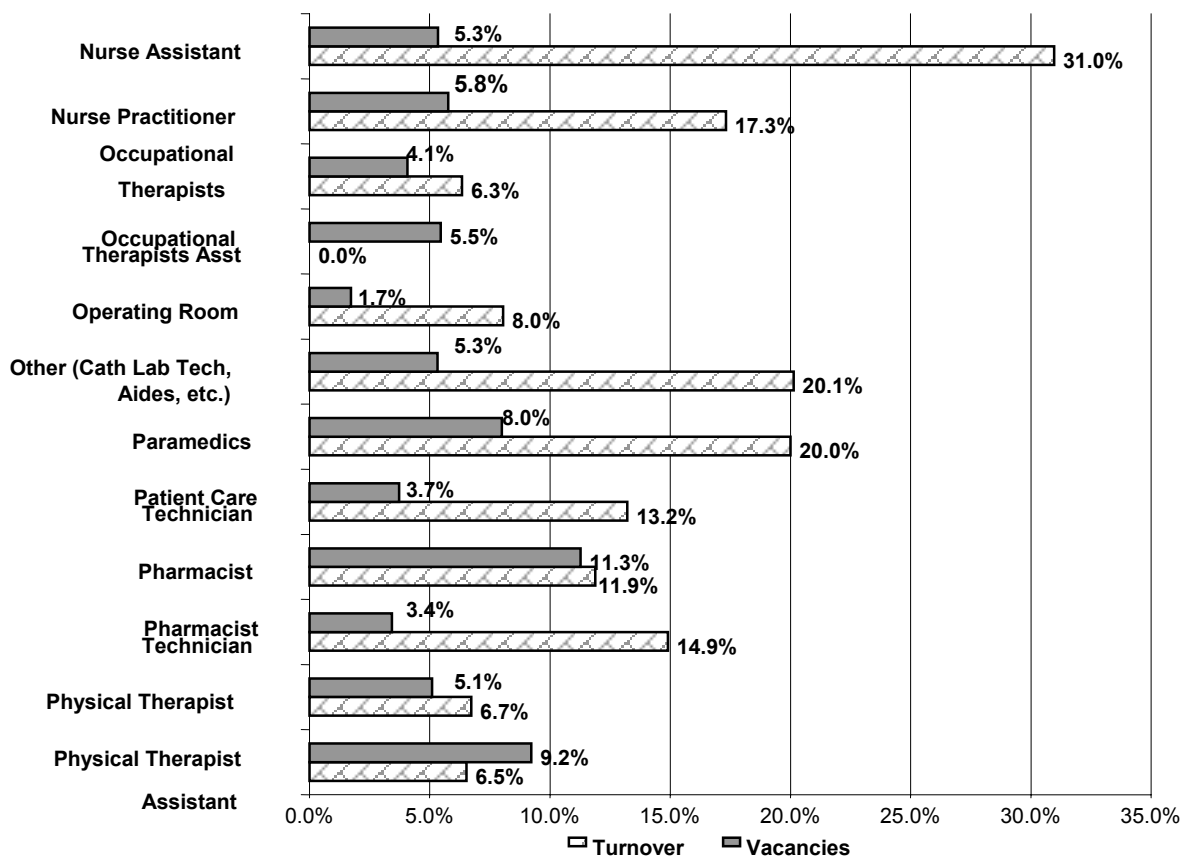
In 2002, 367 of the original 447 surveys were returned, for a response rate of 82.1 percent. As illustrated in the following figures, the position with the highest percentage of vacancies was Nephrologist at 75 percent, while the lowest percentage of vacancies was Registered Record Technician and Speech Pathologist at 0 percent. The position with the highest percentage of turnovers was Nurse Assistant at 31 percent and the lowest rate of turnovers was Nephrologist and Occupational Therapist Assistant, both at 0 percent.

The Department of Health will again be conducting this survey of all licensed, registered, and certified facilities and will add clinics to the survey as well. Contact the department's Office of Data, Statistics and Vital Records office at 773-3361 for more information or to request a copy of the report.

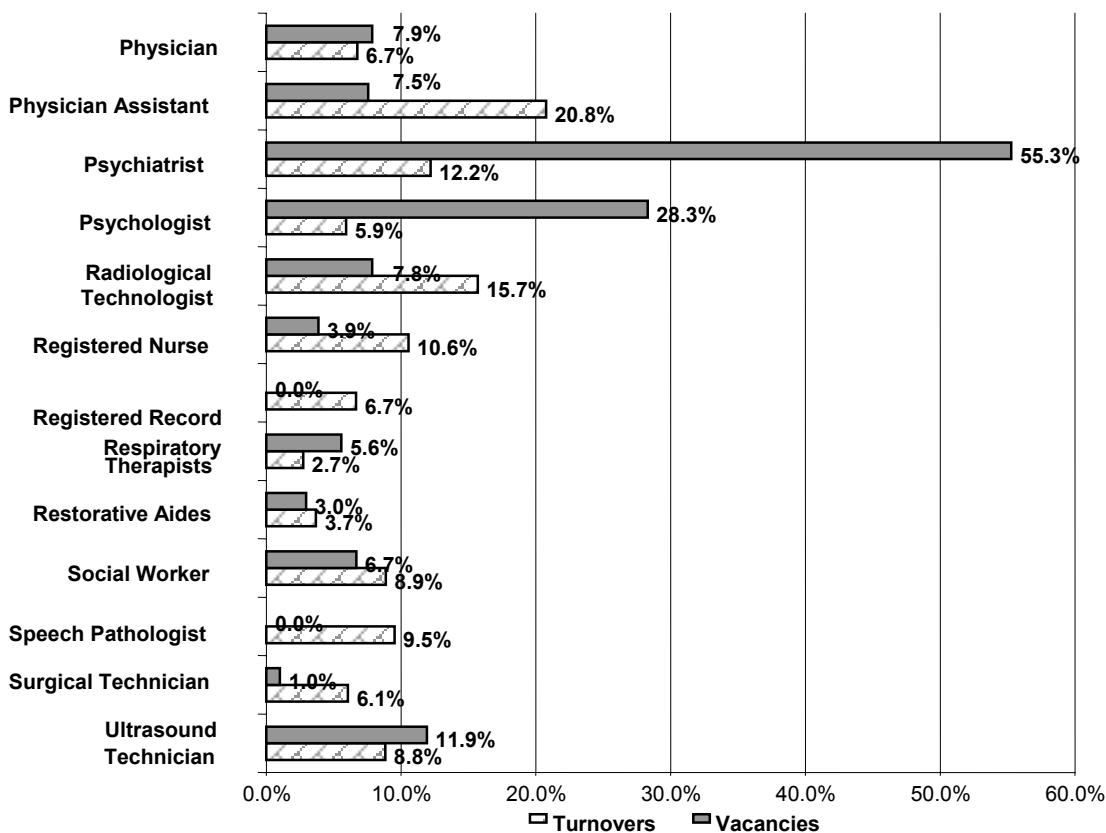
**Figure 1**  
**Percent of Vacancies and Turnovers (Chart 1 of 3)**



**Figure 2**  
**Percent of Vacancies and Turnovers (Chart 2 of 3)**



**Figure 3**  
**Percent of Vacancies and Turnovers (Chart 3 of 3)**



South Dakota Department of Health - Infectious Disease Surveillance				
Selected Morbidity Report, 1 January – 30 April 2003 (provisional numbers)				
	Disease	2003 year-to-date	5-year median	Percent change
<b>Vaccine-Preventable Diseases</b>	Diphtheria	0	0	na
	Tetanus	0	0	na
	Pertussis	2	3	-33%
	Poliomyelitis	0	0	na
	Measles	0	0	na
	Mumps	0	0	na
	Rubella	0	0	na
	<i>Haemophilus influenza</i> type b	1	0	na
<b>Sexually Transmitted Infections and Blood-borne Diseases</b>	HIV infection	8	8	0%
	Hepatitis B	1	0	na
	Chlamydia	819	578	+42%
	Gonorrhea	58	81	-28%
	Genital Herpes	113	105	+8%
	Syphilis, primary & secondary	0	0	na
<b>Tuberculosis</b>	Tuberculosis	9	6	+50%
<b>Invasive Bacterial Diseases</b>	Neisseria meningitidis	1	4	-75%
	Invasive Group A <i>Streptococcus</i>	14	6	+133%
<b>Enteric Diseases</b>	<i>E. coli</i> O157:H7	2	2	0%
	Campylobacteriosis	24	28	-14%
	Salmonellosis	22	26	-15%
	Shigellosis	8	19	-58%
	Giardiasis	16	31	-48%
	Cryptosporidiosis	9	3	+200%
	Hepatitis A	0	2	-100%
<b>Vector-borne Diseases</b>	Animal Rabies (through April 2003)	44	40	+10%
	Tularemia	0	0	na
	Rocky Mountain Spotted Fever	0	0	na
	Malaria	0	0	na
	Hantavirus Pulmonary Syndrome	1	0	na
	Lyme disease	0	0	na
	West Nile Virus disease	0	0	na
<b>Other Diseases</b>	<i>Streptococcus pneumoniae</i> , drug-resis	0	1	-100%
	Legionellosis	0	1	-100%
	Additionally, the following diseases were reported: Invasive Group B <i>Streptococcus</i> (2) and Toxic Shock Syndrome (1)			

Communicable diseases are obligatorily reportable by physicians, hospitals, laboratories, and institutions.

The **Reportable Diseases List** is found at [www.state.sd.us/doh/Disease/report.htm](http://www.state.sd.us/doh/Disease/report.htm) or upon request.

Diseases are reportable by telephone, mail, fax, or courier.

**Telephones:** 24 hour answering device 1-800-592-1804; for a live person at any time call 1-800-592-1861; after hours emergency 605-280-4810. **Fax** 605-773-5509.

**Mail** in a sealed envelope addressed to the DOH, Office of Disease Prevention, 615 E. 4th Street, Pierre, SD 57501, marked "Confidential Medical Report".